

DEPARTMENT OF THE INTERIOR

ENVIRONMENTAL ASSESSMENT

PUBLIC DEER HUNTING

on

BACK BAY NATIONAL WILDLIFE REFUGE

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FISH AND WILDLIFE SERVICE

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Back Bay National Wildlife Refuge

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I. PURPOSE AND NEED FOR ACTION

The U. S. Fish and Wildlife Service proposes to initiate an annual public hunt for white-tailed deer on Back Bay National Wildlife Refuge. It is the purpose of the hunting program to reduce the deer herd, maintain the population at a level commensurate with the carrying capacity of the habitat and to provide a quality outdoor recreational experience for a specific number of hunters.

BACKGROUND

White-tailed deer studies on the Back Bay/False Cape deer herd have been conducted since 1980 (see Appendix A, "Deer Studies"). What follows is a summary of these studies, and points to the need of deer herd control on Back Bay NWR.

Abomasal Parasite Counts (APC's) on white-tailed deer is the accepted method in the southeastern United States for evaluating carrying capacity related to available food supply. Eve, J. H. and F. E. Kellogg (1977 J. W. M. 41:169-177) suggested that deer population increases should be curtailed when the APC is greater than 1,000. The likelihood of significant mortality due to other causes (i.e. disease) increases directly with the APC. With APC's averaging 3,247 (2,273 on the mainland and 4,220 on Long Island) on September 9, 1983, it is obvious that harvesting is needed in order to avoid an imminent population crash.

Dead deer found on the refuge are consistently showing femur bone marrow fat compositions of around 15%. Kistner, Trainer, and Hartman (Wild. Soc. Bull 8(1) 1980 11-16) state that "most emaciated animals can recover if the factors causing emaciation

are corrected. However, some emaciated animals - particularly those with serious atrophy of femur marrow (15% is serious) - will die, regardless." Those deer collected (harvested) on September 9, 1983, had femur fat percents hovering around 25%, not far from "the point of no return".

Although the deer on Long Island and the mainland are considered to be one herd (deer have been observed crossing the bay), over utilization of habitat is more obvious on the island. The pine stand understory, both the bayberry/wax myrtle (*Myrica*) and the greenbriar (*Smilax*) show heavy feeding by deer. The bayberry has a predominate browse line at 3-4 feet above the surface and the smilax has been browsed until the individual plants are "bush like" (indicating a long period of heavy feeding). The bayberry community, as in the pine stand, shows a browse line at the 3-4 foot level. No poison ivy (*Rhus*) and very little honeysuckle was noted below 4 feet in any of the areas looked at. Some sedges show signs of feeding, but appear not to be heavily utilized at present.

Spotlight deer counts have been conducted in order to monitor population trends, however, no population estimates should be derived from these counts. As stated in 7 AM 11.4B of the Refuge Manual, "Roadsides are rarely typical of the total habitat of a species, and in most cases changes in visibility of animals with season or habitat type severely constrain expansion of a time-area count to the population as a whole. Nevertheless such population indices may be calibrated to increase comparability. With knowledge of the life history of the species of interest, comparable data may be obtained from year to year."

This Environmental Assessment evaluates the initiation of public deer hunting as a means of keeping wildlife populations in balance with the Back Bay habitat, while providing significant public outdoor recreational benefits.

The dense human population of the Tidewater Area creates a high demand for recreational opportunities. The population within the City of Virginia Beach alone is slightly over 310,000 and increasing yearly. The refuge proposes to satisfy some of this demand by offering controlled public hunting of deer on designated areas. Currently, access for bird watching, photography, hiking, bicycling, guided group tour, and educational activities is provided.

II. ALTERNATIVES

To accomplish the primary objective of herd control, three alternatives were examined and are fully described. Only one alternative accomplishes the secondary objective of providing a quality outdoor recreation experience for the public. Four alternatives were not considered for this assessment and are listed below.

Live trapping and relocating deer was dismissed because suitable deer habitats elsewhere in Virginia are well populated, relocation sites are not available, and live trapping is expensive. It is also doubtful that live trapping could reduce the herd low enough to balance it with the carrying capacity of the habitat.

The introduction of predators was dismissed due to the proximity of a densely populated community (Sandbridge). The eastern

cougar and the eastern wolf, the only native predators large enough to take healthy adult deer are endangered species and their home ranges exceed the limits of the refuge.

Habitat management would permit more deer to survive than the current habitat allows; however, it is impossible to expect that habitat manipulation could provide for an ever increasing herd, in the absence of regulation controls. In addition, management for deer to the exclusion of other species would be contrary to Fish and Wildlife Service objectives.

Hunting deer with dogs was also dismissed at this time because data are limited as to hunter success without dogs in this habitat. The use of dogs may be reviewed at a future time.

A. No Action Alternative

This alternative would prevent active herd management and would allow the herd to be regulated by natural means of disease and starvation. Without natural predators, or some means of population control the herd would continue to exceed the carrying capacity of the refuge environment, and before the expected die-off, would degrade the habitat further than is already found. Habitat degradation by deer would negatively impact other wildlife and would be favored by those members of the public opposed to hunting, but it would deny the opportunity for other members of the public to harvest a renewable resource. This alternative is contrary to Fish and Wildlife Service objectives of management for optimum populations of all wildlife species.

B. Proposed Action

A total of seven hunting zones are proposed to be opened for public deer hunting. Six of these zones would be on the mainland,

south of the maintenance compound, and the seventh zone would consist of Long Island (See Appendix B, "Hunting Zones"). This would result in the hunting of approximately 1,882 acres, or 41% of Back Bay NWR.

The hunting of white-tailed deer would be allowed, commencing the last Monday of October, and continuing until the second Saturday in November. During that time period, there would be three days of bow hunting, immediately followed by three days of gun hunting. After the initial six days of hunting, there would be four days of no hunting, followed by a final three days of gun hunting. Thus, a total of nine days of hunting would be allowed.

Forth-eight hunters, hunting in seven zones (see Appendix B) for nine days, would allow for a maximum of 432 hunter days. False Cape State Park (adjacent to the refuge) has had an average hunter success ratio of approximately 22% (Don Schwab, personal communication, 12/05/84) over the past two years. Assuming 22% hunter success, and 100% hunter capacity, the proposed action could result in a total harvest of 95 deer. This figure is considered to be high, as 100% hunter capacity is not expected.

Transportation to all hunting zones would be provided by the refuge, with the exception of Long Island (Zone 7). Transportation to Zone 7 would be by boat, and would have to be in the form of hand-launchable boats provided by the hunters. No trailered boats would be permitted due to the low parking capacity.

The charging of fees is not being considered at this time. Because the refuge has never been opened for deer hunting, and the public is not used to the idea, it is felt that charging a

fee would serve to reduce hunter participation. A reduction in participation would decrease the anticipated harvest and therefore would be contrary to the primary objective as stated below. (See "Affected Environment"). It is also felt that the administration costs associated with the collection of fees would exceed the sum of the fees collected.

C. Population Reduction by Refuge Staff

This alternative would require that refuge personnel take full responsibility for herd reduction by harvesting, dressing and chilling the meat under the Department of Agriculture guidelines for institutional distribution after inspection would also be required. This alternative would reduce crippling and permit limited selection of animals harvested to correct the age/sex ratios of the herd. This alternative would eliminate the public recreational value, the food supplement to regional families and would be impractical in terms of staff time required to accomplish the objective of herd control. NOTE: Other means of disposal of the deer carcasses were rejected because of the high disease potential if carcasses are left on site and the waste of meat for human consumption.

III. Affected Environment

The refuge is comprised of approximately 4,600 acres of barrier beach, fresh and brackish marsh, small woodland areas, and open water. An additional 4,600 acres of water in Back Bay, closed to waterfowl hunting by Presidential Proclamation in 1939, compliment the refuge.

A. Refuge Objectives

Back Bay National Wildlife Refuge's primary function is to

provide habitat and protection for waterfowl, other migratory birds, and other wildlife species. Some specific objectives at Back Bay are as follows:

1. To develop and manage the refuge for a full spectrum of wildlife insuring that populations are in balance with the carrying capacity of the habitat. Special emphasis is placed on greater snow geese and other waterfowl and shorebirds, including cooperation with other agencies in improving and maintaining optimum waterfowl habitat in Back Bay.

2. To enhance conditions for all species of wildlife on the refuge whose survival is in jeopardy. These are the peregrine falcon, bald eagle, brown pelican, and loggerhead sea turtle.

3. To provide conservation education and wildlife-oriented recreational opportunities for refuge visitors.

4. To provide an outdoor classroom for universities, colleges, and public schools for environmental education with special emphasis on wildlife and habitat management.

5. To preserve portions of the refuge in a natural state, including a stand of live-oak near the northern limits of the range of this species.

B. Physical Features

The barrier beach and dune system on the refuge extends for some 4.5 miles along the Atlantic Ocean. Proceeding inland from the ocean the barrier land spit shows a profile of beach, foredunes, interdunal swales, reardunes, high marsh flats, impoundments, waters and islands of Back Bay. Soils on the re-

fuge are very sandy, but in places are mixed or overlaid with organic material from decaying vegetation.

Much of the area within the refuge was formerly an overwash area, meaning that storm tides occasionally put ocean water into Back Bay across the barrier land spit. Vegetation grew primarily on the dunes, the higher elevations, and marsh areas not subject to overwash. In the 1930's the Civilian Conservation Corps initiated efforts to construct and stabilize sand dunes along the beach front of the washover area. Their efforts were successful and these dunes have been maintained to the present day. In the 1950's and 60's a series of low dikes and water control structures were constructed by the Fish and Wildlife Service behind the dunes to create shallow impoundments for the enhancement of waterfowl habitat. These impoundments, approximately 650 acres, are managed through water manipulation, burning and plowing.

The major physical feature of these impoundments is the West Dike which has a height of about three feet above the marsh surface and extends north and south parallel to the Back Bay shoreline. Several east-west cross dikes divide the larger impoundment into small compartments (Units A,B & C). A pump station and several water control structures are located on the West Dike. The East Dike Road, extending north-south along the transition zone between marsh and dunes, is located partly on low dike segments and partly on higher, natural elevations. It marks the east edge of the major impoundment units and serves also as an unimproved service road.

Scattered throughout the bay, west of the barrier land spit

(mainland), are islands of which Long Island is the highest and largest. This island is technically two islands, as a channel cuts through (east-west) on the north end of Long Island.

C. Biological Features

1. Plants

Plant species on the refuge are basically controlled by water table depth and/or salt spray. The dune area is dominated by American beach grass (Ammophila breviligulata) and sea oats (Uniola paniculata) while the interdunal swales have several common species present including salt meadow cordgrass (Spartina patens), needlerushes (Juncus spp.), three-square (Scirpus americanus), broom sedge (Andropogon virginicus), Centella asiatica, pennywort (Hydrocotyle umbellata), and aster (Aster tenuifolius). On the perimeter of these swales and the back dunes dominant plants include groundsel tree (Baccharis halimifolia), wax myrtle (Myrica cerifera), bayberry (Myrica pensylvanica), black cherry (Prunus serotina), and live oak (Quercus virginiana).

The impoundments, marsh flats and islands are dominated by plants such as cattail (Typha spp.), black needlerush (Juncus roemerianus), water hyssop (Bacopa spp.), spike-rushes (Eleocharis spp.), salt meadow cordgrass (Spartina patens), beggar tick (Bidens spp.), and three-square. On the higher sand mounds in the marsh flats, islands and impoundments, a fragment of forest exists. Dominating plant species include wax myrtle, live oak, red maple

(Acer rubrum), loblolly pine (Pinus taeda) and green-brier (Smilax bona-nox). The more common species on the dike crown and slopes include salt meadow cordgrass, Bermuda grass, goldenrod, broomsedge, wax myrtle and groundsel tree.

2. Animals

As pointed out in the objectives, Back Bay is primarily a waterfowl refuge. Waterfowl populations build throughout the fall, reaching their peak in mid-winter. Because the proposed action would occur in October and November, Table I represents peak populations for those months, which are less than yearly peaks.

TABLE I
PEAK POPULATIONS FOR WATERFOWL/DURING THE MONTHS
OF OCTOBER AND NOVEMBER

	<u>Oct</u> <u>80</u>	<u>Nov</u> <u>80</u>	<u>Oct</u> <u>81</u>	<u>Nov</u> <u>81</u>	<u>Oct</u> <u>82</u>	<u>Nov</u> <u>82</u>	<u>Oct</u> <u>83</u>	<u>Nov</u> <u>83</u>	<u>Oct</u> <u>84</u>	<u>Nov</u> <u>84</u>
Snow										
Geese	1500	8000	0	5000	1100	6000	1000	1500	35	7000
Canada										
Geese	100	2000	160	235	700	700	225	350	19	450
Tundra										
Swans	150	10000	45	90	100	859	2	55	2	3000
Ducks	25975	17710	1240	9345	10604	11352	2488	3521	353	8265
Coots	250	1000	0	0	43	200	11	36	6	25

Major duck species include mallard, black, gadwall, wigeon, pintail, ruddy, blue-winged teal, green-winged teal, and shoveler. During the summer months, less than 100 breeding adults are present on the refuge. These are made up of mallards, black ducks, wood ducks, and gadwalls.

Since the refuge's establishment in 1938, some 259 bird species have been observed on the refuge. Most of these species

are migratory and, therefore, may be present only a portion of the year. Besides the waterfowl mentioned previously, these birds include a variety of shorebirds, marsh and wading birds, water birds, raptors and passerine birds.

The only threatened or endangered species found on the refuge are loggerhead sea turtles, peregrine falcons, bald eagles, and brown pelicans. Loggerhead sea turtles occasionally nest on the refuge's beach, but are frequently found stranded (dead). In 1984 there were no sea turtle nests found, however, seven dead turtles were found on the refuge beach.

Peregrine falcons are found on the refuge rather frequently during the raptor migration, however, they mostly use the beach, and pass through before the end of October. Brown pelicans also are found on the refuge frequently, however, they also use the beach exclusively, and only during the summer months. Bald eagles only use the refuge incidently.

Back Bay Refuge has been considered as a potential hacking site for peregrine falcons. Based on consultations with Dr. Mitchell Byrd of William and Mary, who coordinates this program in Virginia, it is not expected that the Back Bay site will be used in 1985 for this purpose. Even if the site were to be used, the critical period for hacking (summer) would not conflict with the proposed time for deer hunting (fall).

Other wildlife found on the refuge include mammals, reptiles, amphibians and insects. Of major interest among these categories are white-tailed deer, river otter, gray fox, feral hogs, nutria, and muskrat.

D. Public Use

Since the refuge is located near a large metropolitan area and has 4.5 miles of Atlantic Ocean beach. These uses include swimming, surfing, sun bathing, and surf fishing. Public vehicular use (off-road vehicle use) is restricted to qualified North Carolina residents, commercial fishermen and False Cape State Park employees who have refuge beach access permits.

Other forms of public recreation include wildlife observation, interpretation, environmental education, photography, hiking and biking, most of which takes place on the various refuge trails and dike roads. A summary of public use activities for Fiscal Year 1979 is attached as Appendix C.

IV. ENVIRONMENTAL CONSEQUENCES

A. No Action Alternative

Failure to reduce the deer herd to levels within the carrying capacity of the Back Bay environment may have serious impacts on the deer herd and the habitat. If the deer herd is permitted to self-regulate through disease and starvation it will reduce the herd to numbers unnecessarily low and provide a potential enzootic disease pool which could spread to healthy herds in the region. The current over population of deer (see "Purpose and Need") is already degrading the habitat as a result of overbrowsing. If left unmanaged, the deer herd would survive a number of years at the expense of other wildlife species, a condition contrary to Fish and Wildlife Service policy. By allowing the herd to continue to overpopulate, an even greater browse line (than currently exists) would be created. This would further reduce food and cover for nearly all species using the lower vegetation

(5 to 7 feet above the ground). Species adversely affected would include ground and shrub nesting birds, small mammals which utilize ground vegetation for food and cover, and predators which feed on the small animals and birds.

If a public hunt is not conducted, those members of the public against hunting would not be negatively impacted. For those individuals in favor of hunting, the no action alternative would preclude a potential of approximately 5,100 activity hours of wildlife recreation. Direct hunting disturbance to other wildlife as well as safety hazards to the public would not occur.

B. Proposed Action

The environmental effects of conducting a public deer hunt on Back Bay National Wildlife Refuge will be confined to 1,882 acres of the 4,600 acre area.

Impacts to wildlife will include the harvest of an estimated maximum of 95 deer (at 22% hunter success). If this harvest rate is attained it will result in lowering the deer population to a level more consistent (than currently exists) with the carrying capacity of the habitat. This population reduction would serve to reduce the degree of habitat degradation than is currently found. Thus, the long term impacts to other wildlife would be positive.

The proposed hunt will have temporary minor negative impacts on waterfowl. Disturbance of waterfowl is unavoidable when 48 deer hunters per day are allowed to hike through the refuge discharging firearms. It is therefore expected that waterfowl numbers during the proposed hunt will decrease slightly (when compared to previous years), due to disturbing activities.

However, the proposed deer hunt dates do not coincide with the Virginia waterfowl seasons; and, even though temporary displacement of waterfowl is expected, indirect mortalities (by pushing waterfowl onto waterfowl hunt areas) will not occur. In addition, peak waterfowl populations occur after the proposed hunt dates, thus further reducing temporary impacts to these birds. By reducing the rate of habitat degradation, waterfowl will receive positive impacts in the long term.

The only threatened or endangered species found on the refuge are loggerhead sea turtles, peregrine falcons, bald eagles, and brown pelicans. Loggerhead sea turtles nest on the refuge's beach, which is out of the proposed hunt area (see Appendix B). Peregrine falcons are found on the refuge rather frequently during the raptor migration, however, they mostly use the beach (out of the hunt area), and pass through before the proposed action is planned to commence. Brown pelicans are found on the refuge frequently, however, they also use the beach exclusively, and only during the summer months. Bald eagles only use the refuge incidently; and the hunting program should have no effect on their infrequent use. therefore the proposed action will have no significant impacts to any threatened or endangered species.

The proposed hunt (on the mainland) will be limited to an area south of the maintenance compound (see Appendix B) in order to mitigate negative impacts to public use. Typically, the majority of Back Bay's public use occurs along the beach, and north of the maintenance compound. These areas will remain open

(for non-consumptive use) during the proposed hunt, and will be able to accommodate school groups for environmental education activities.

Much of the public use within the proposed hunt area (mainland) is due to people hiking/biking to False Cape State Park. Because the refuge hunt would occur at the same time as False Cape's deer hunt, when the park is closed to visitation, there will be no negative impacts imposed on the Park's visitors.

Non-consumptive visitors, who's only desire is to view wildlife within the proposed hunt area, will be negatively impacted for the duration of the hunt. Approximately 130 public use days (non-consumptive) will be eliminated for the duration of the hunt. This small impact is unavoidable.

Long Island is not open for public use at anytime, therefore deer hunting will have no impact to non-consumptive use on the island.

Deer hunting would have a beneficial impact to consumptive users, providing a potential of 432 hunter use days.

The regional socio-economic effects include those impacts on members of the public that react strongly for or against hunting; increased early morning and evening traffic on the peripheral county and state roads; and a slight increase in purchase of goods and services at local retail outlets.

Impacts directly related to the refuge include increased use; an estimated 23 staff days to conduct the hunt and a additional 20 staff days for signing and road rehab.

Efforts to insure the safety of the hunters include requirements for limited number of hunters/hunt area, wearing 400 square

inches of blaze orange vest and hat, and the certified completion of a state approved hunter safety course. On site, the hunters may not possess a loaded firearm on the roads or ditch banks and are restricted to shotguns or bow and arrows only.

The proposed action would not conflict with wetland, wild or scenic rivers, wilderness, flood plain, navigable waterways, coastal zone management or historical sites legislation. No prime or unique farmland exists on the proposed hunt area.

C. Population Reduction by Refuge Staff

This alternative would produce similar impacts to the herd, other wildlife and the habitat as the proposed action. The primary differences between this alternative and the proposed action include; greatly increased staff time requirement of about 100 days for the hunt; the necessary acquisition of additional equipment for killing, cooling and transporting the deer under USDA regulations; the loss of some 432 hunter use days (and the associated socio-economic effects as described in IV B); the adverse reaction of non-hunters because of the use of guns by refuge staff; and a reduction in safety hazards for the public. Although refuge staff could be somewhat selective in the harvest of deer it would be difficult if not impossible to take the desired number of animals if attempts were made to selectively harvest. The opportunity to reduce reproductive potential by increasing the percent of does harvested would exist. All other impacts would be the same as described in "Environmental Consequences" of the Proposed Action (see above).

V. CONSULTATION AND COORDINATION WITH OTHERS

Consultation and coordination has been conducted with the Virginia Commission of Game and Inland Fisheries. The Commission has encouraged the consideration of a public deer hunt on Back Bay NWR. A public notice of the proposed hunt and availability of this EA have been prepared and sent to local papers for publication.